22. Jabbari B, Gunderson CH: Palatal myoclonus responding to trihexyphenidyl (Letter). Ann Neurol 1983; 14:95

23. Mardini MK: Ear-clicking 'tinnitus' responding to carbamazepine (Letter). N Engl J Med 1987; 317:1542

24. Westmoreland BF, Sharbrough FW, Stockard JJ, Dale AJ: Brainstem auditory evoked potentials in 20 patients with palatal myoclonus. Arch Neurol 1983; 40:155-158

Bilateral Tension Pneumothoraces After Acupuncture

ROBERT S. WRIGHT, MD
Los Angeles, California

JEFFREY L. KUPPERMAN, MD
MYRON I. LIEBHABER, MD
Santa Barbara, California

DURING THE PAST 20 YEARS, acupuncture has become an increasingly popular "alternative therapy" for a variety of illnesses. While viewed by many as a useful adjunct for musculoskeletal conditions, it is also used by some practitioners for systemic illnesses, including asthma. Physicians should be aware of the purported justifications and possible complications of acupuncture therapy for asthma. The following report of bilateral tension pneumothoraces in a pregnant asthmatic patient receiving acupuncture demonstrates the need for this awareness.

Report of a Case

The patient, a 31-year-old woman, underwent acupuncture for the treatment of asthma during her third pregnancy. She had a history of childhood asthma but was asymptomatic from age 11 until age 27. During her second pregnancy, asthma recurred, and she has had intermittent exacerbations since. Multiple pollen allergies were treated with immunotherapy for three years preceding the third pregnancy.

About two weeks before undergoing acupuncture, she had a worsening of her asthma despite the use of theophylline, prednisone, subcutaneous epinephrine, cromolyn sodium, nebulized terbutaline sulfate, and a metaproterenol inhaler. In addition, tests confirmed that she was pregnant.

On the day of admission, she went to an acupuncturist who inserted standard acupuncture needles bilaterally in the tissues of her upper back. At the time of the needle insertions, she experienced severe pleuritic chest pain that persisted until she left the acupuncturist's office three hours later. Such severe dyspnea and tachypnea rapidly developed that she could not comfortably converse. She was seen at a nearby emergency department where a chest x-ray film showed bilateral pneumothoraces (Figure 1), but the abnormality was not recognized until she was transferred to our hospital for further evaluation.

She arrived at the hospital about nine hours after the initial acupuncture needle placement. She was in severe respiratory distress. Vital signs showed a blood pressure of 90/64 mm of mercury, a heart rate of 100 beats per minute, and respirations of 40 per minute. A pertinent physical examination revealed that the trachea was midline. She had bilateral costovertebral angle tenderness. Diffuse inspiratory and expiratory wheezing was noted, without friction rubs. Heart sounds were distant. There was no clubbing, cyanosis, or edema. The patient was given oxygen by nasal cannula at 6 liters per minute. An arterial blood gas determination showed a pH of 7.28, a Pco_2 of 40 mm of mercury, and a Po_2 of 101 mm of mercury. Bilateral thoracostomy tubes were immediately placed, and there was a rush of escaping air from each hemithorax. Her condition rapidly improved, but she still required standard bronchodilator therapy and steroids for asthma management. She was discharged to home after nine days and eventually bore a healthy full-term infant.

Comment

Several episodes of pneumothorax resulting from acupuncture have been reported worldwide. Carette and coworkers summarized most of the reports in 1984.[1] Most reports have mentioned unilateral pneumothorax, and we are aware of only four previously described episodes of bilateral pneumothoraces.[2-4] Tension pneumothorax has not been specifically described, although in one of the reported cases of bilateral pneumothorax, the patient died.[4] Also of note is the development of status asthmaticus in a patient with unilateral pneumothorax after acupuncture despite the placement of a thoracostomy tube.[1]

The case we have described is pertinent for several reasons. First, the patient believed that acupuncture would be beneficial for her asthma and that she could avoid the use of asthma medications during her first trimester of pregnancy. Second, the development of bilateral tension pneumothoraces was neither appreciated nor considered either clinically or radiologically by health care personnel initially seeing her at the referring medical facility. Finally, tension pneumothorax resulted, and this has been rarely described. The diagnosis in this case is based on the clinical description of air

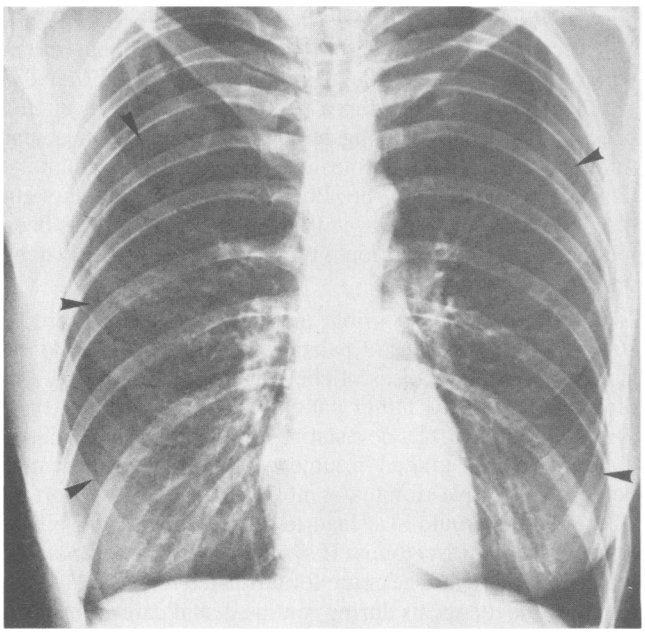

Figure 1.—A chest x-ray film taken several hours before presentation shows bilateral pneumothoraces. The arrows outline lung markings.

(Wright RS, Kupperman JL, Liebhaber MI: Bilateral tension pneumothoraces after acupuncture. West J Med 1991 Jan; 154:102-103)

From the Department of Medicine, Division of Pulmonary and Critical Care Medicine, UCLA Medical Center, Los Angeles (Dr Wright), and the Department of Medicine, Divisions of Pulmonary and Critical Care Medicine (Dr Kupperman), and Allergy and Immunology (Dr Liebhaber), Santa Barbara Medical Foundation Clinic, Santa Barbara, California.

Reprint requests to Robert S. Wright, MD, Santa Barbara Medical Foundation Clinic, PO Box 1200, Santa Barbara, CA 93102-1200.

under pressure at the time of chest tube placement, her tenuous clinical condition, and the acidemia that reflected a lactic acidemia due to hypoperfusion. The lack of a mediastinal shift was due to the collapse of both lungs. The initial chest x-ray film certainly underestimated the degree of collapse because it was taken several hours earlier at the referring facility. We think cardiovascular failure was imminent and would have occurred without the placement of the chest tubes.

The principle of Chinese acupuncture is that inserting small needles along various channels or meridians restores the balance between yin and yang. The acupuncture needles are typically made of stainless steel and are 28 gauge in size or smaller. The so-called lung channel runs from below the clavicle, down the median aspect of the arm, and ends in the thumb.[5] Under usual circumstances, penetration of the skin along these points is harmless although possibly associated with minor discomfort. Many practitioners insert needles in other locations, however, including the upper back, as noted in the reports of pneumothorax cited. Pneumothorax can develop, particularly when the insertions are done during acute asthma attacks.

Although acupuncture has been shown by investigators to cause bronchodilation, possibly by cholinergic inhibition,[6,7] it is less effective than nebulized isoproterenol therapy, and the effectiveness is transitory.[8] Given this knowledge and the untoward effects of acupuncture reported herein, the use of this alternative therapy should be discouraged for the management of asthma. Patients who consider acupuncture for the management of their asthma should be informed of the possibility of life-threatening pneumothorax.

REFERENCES

1. Carette MF, Mayaud C, Houacine S, Milleron B, Toty L, Akoun G: Traitement d'une crise d'asthme par acupuncture: Rôle probable dans la survenue d'un pneumothorax avec évolution vers un état de mal asthmatique. Rev Pneumol Clin 1984; 40:69-70

2. Ritter HG, Tarala R: Pneumothorax after acupuncture. Br Med J 1978; 2:602-603

3. Mazal DA, King T, Harvey J, Cohen J: Bilateral pneumothorax after acupuncture (Letter). N Engl J Med 1980; 302:1365-1366

4. Brettel HF: Akupunktur als Todesursache. MMW 1981; 123:97-98

5. Pearson P: An Introduction to Acupuncture—A Practical Guide for GPs and Other Medical Personnel. Norwell, Mass, MTP Press, 1987, pp 9-36

6. Tashkin DP, Bresler DE, Kroening RJ, Kerschnar H, Katz RL, Coulson A: Comparsion of real and simulated acupuncture and isoproterenol in methacholine-induced asthma. Ann Allergy 1977; 39:379-387

7. Urban S, Bangha O, Kristufek P: Comparison of functional changes after acupuncture in patients with bronchial asthma. Stud Pneumol Phtiseol Cechoslov 1985; 45:669-674

8. Tashkin DP, Kroening RJ, Bresler DE, Simmons M, Coulson AH, Kerschnar H: A controlled trial of real and simulated acupuncture in the management of chronic asthma. J Allergy Clin Immunol 1985; 76:855-864

Clinical Trial of Botulism Immune Globulin for Infant Botulism

TERESA L. FRANKOVICH, MD
STEPHEN S. ARNON, MD
Berkeley, California

WE WISH TO ALERT your readers to a new potential treatment of infant botulism, human-derived botulism immune globulin (BIG), that became available in California on January 1, 1991. The clinical trial of BIG is an efficacy (phase II) study sponsored by the Orphan Drug Program of the US Food and Drug Administration and the California Department of Health Services. Available laboratory data and experience with food-borne botulism suggest that prompt treatment of botulism yields the best outcome. To obtain BIG, physicians should contact the study office as quickly as possible when they suspect a diagnosis of infant botulism in their patient. The study's 24-hour telephone number is (415) 540-2646.

Infant botulism has a broad clinical spectrum of symptoms ranging from constipation and mild weakness to full paralysis requiring mechanical ventilation. Upon hospital admission the typical patient with infant botulism may have ptosis, a disconjugate gaze, expressionless facies, prominent head lag, diffuse hypotonia, and other neurologic findings. In spite of this, infant botulism may be difficult to recognize in its early stages, and, even today, the most common admitting diagnosis for these patients remains "rule out sepsis."

In the past two years, 68 patients with infant botulism were admitted to hospital in California, most of whom required treatment in the intensive care unit. The average length of hospital stay for these infants was 4.9 weeks, and total hospital costs exceeded $4 million. It is hoped that treatment with BIG will substantially shorten both the duration of illness and the cost of hospital stay for affected infants.

General inquiries regarding this disease or the BIG study can be directed to the Infant Botulism Prevention Program offices at the telephone number listed above, 8 AM to 5 PM (Pacific Standard Time), Monday through Friday.

(Frankovich TL, Arnon SS: Clinical trial of botulism immune globulin for infant botulism. West J Med 1991 Jan; 154:103)

From the SIDS—Infant Botulism Prevention Program, California Department of Health Services, Berkeley.

Reprint requests to Teresa L. Frankovich, MD, Project Director, BIG Clinical Trial, California Department of Health Services, 2151 Berkeley Way, Berkeley, CA 94704.